OSAT Newsletter

Glenn Research Center

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Office of Safety and Assurance Technologies

INSIDE THIS ISSUE

Third Annual Assurance Technology Conference To Be Held at GRC

The Office of Safety and Mission Assurance, Code Q, NASA Headquarters, is sponsoring the Third Annual Assurance Technology Conference at GRC on June 7-8, 2000. The conference provides a unique opportunity for Center and Headquarters' Safety and Mission Assurance personnel, and interested project personnel to network and exchange concepts, ideas, and best practices on technical advances in mission assurance. The Co-Chairmen for this conference are Mr. Thomas Gindorf (JPL) and Mr. Bill Wessel (GRC). Mr. Donald Campbell will open the two-day session and Mr. Michael Greenfield, Deputy Associate Administrator, Code Q, will give the keynote address.

The focus of this year's conference is cutting edge or unique advances in mission assurance services, tools, and processes to the Agency's enterprise initiatives. The conference will showcase NASA's SMA technical excellence. Every Center has been invited to make presentations on what they are doing to further assurance technology. The topics will include methods, tools and approaches used to assure mission success.

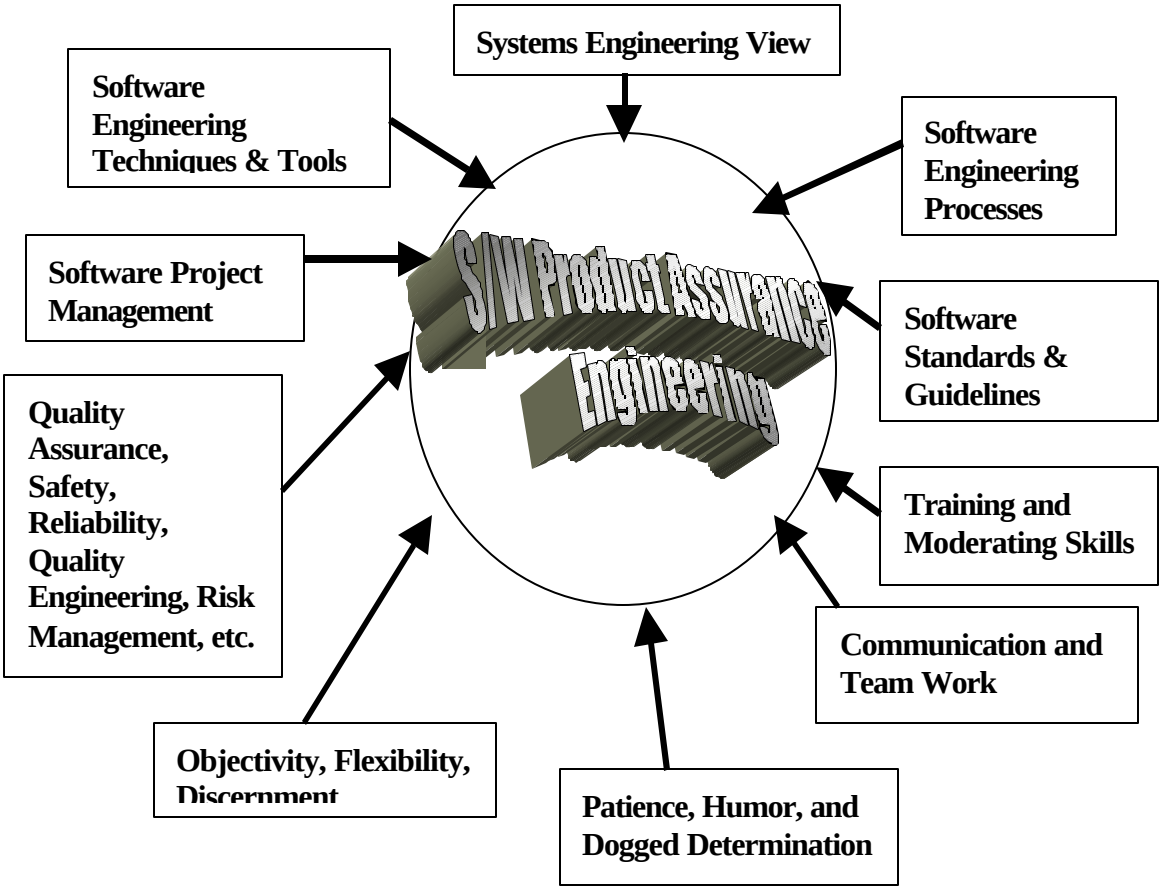
The program content will be purely technical and is aimed to enhance technical knowledge and capability, and to focus on ways assurance technology adds value to projects by reducing the cost of mission success, better managing risk, or enhancing safety of flight or ground operations.

Presentations are intended to be "shirt sleeve" exchanges with an interactive audience. A question and answer period will follow each presentation.

Inspection methods, non-destructive evaluation, software product assurance and risk management are among the presentations expected at the conference. A dedicated session is planned to interactively demonstrate the performance risk balancing tools developed under Code Q sponsorship of the Failure Defect Detection and Prevention Program.

This is a unique opportunity for interchange and interaction on cutting edge mission assurance technology. The sessions will broaden every participant's awareness of assurance technology and the quantitative and qualitative tools available to perform technical, analytical, and engineering analysis for projects and programs. It is guaranteed to be informative and thought provoking, and promote continued dialogue and cooperation within the SMA community. You are invited to attend any or all of the presentations. A final agenda is being prepared and will be posted on the OSAT Homepage as soon as it is finalized.

Software Product Assurance, What Do Those Folks Do?



Software Product Assurance (SPA) requires knowledge in several areas and keeping current with all the latest changes that occur in the field of Software (e.g., new languages, new techniques, Embedded Web Technology, Artificial Intelligence, Formal Methods, automated code generators, model checking, etc.). New means to analyze, estimate, and manage software are continually being developed as well as ways to apply hardware reliability and safety analyses to software. While keeping abreast of the latest advances in software engineering, management and assurance, we support over 15 projects in Microgravity, Aeronautics, Facilities, Space Transportation, and Space Communication. A portion of our efforts is also dedicated to advancing the state-of-the-art in software assurance, software management and software safety, to name a few. The Glenn SPA team created and maintains both a Risk Management Database used across NASA as well as Ask Pete, a tool to help estimate the cost of software projects, determine the software control level, and provide an appropriate outline for a Software Management Plan. In addition, we teach and create training for Formal Inspections, Software Safety, and general software processes. We are a vital part of the Glenn Software Working Group and the NASA Software Working Group, helping to institute the best software processes, procedures, and guidance for application by Glenn's software engineers, scientists, and managers.

SPA engineers work from concept to delivery, evaluating and helping the project determine the proper balance of meaningful, useful and required software management processes and documentation. We work hard to scope the effort and take into account the project's associated risks, including technical, schedule, and cost of doing business, while attaining a quality software product. Once an agreed upon approach is documented in the Software Management Plan, Software Development Plan, and/or the Software Assurance Plan, SPA continues to work with the project to review documents, witness testing, audit processes and provide input to boards and reviews.

Software now controls and monitors most of our hardware and the majority of our projects could not be successful without effective software. However, software has a history of over running it's budget and schedule and still not delivering all that was promised or required. Why is this? In large part, it comes from hitting a moving target, not understanding the complexities of even minor software projects, the overly optimistic projections of the software engineers, and project managers with little or no software experience. (Continued on next page)

Risk Management Office (con't)

SPA comes into the picture to add a software systems perspective and help maintain the necessary steps to create a quality, safer and more reliable software product that meets it's requirements.

Much of software's quality, and indeed its very operability, is based on how it is developed. The paperwork and process that goes with software is just as significant as the code itself. Unlike hardware, there are not decades of discipline and methodology in the way software is created. Besides, not only do the languages evolve for software, so do the means of structuring the basic elements that are created to build a software system. SPA tries to help determine the right type and amount of discipline that is necessary for overall project success, helping both the project managers and the software engineers do their jobs better. Since the majority of software errors come from missing and misunderstood requirements, we concentrate much of our effort into assuring that the requirements are as complete, clear and verifiable as possible.

The NASA Glenn Software Product Assurance Group is currently made up of two civil servant and two to three SAIC contractors. Martha Wetherholt and Phuoc Thai lead the team with the support of Tim Kurtz, Hong Fu, and Maria Havenhill. We are looking to hire a few more engineers to help with this exciting work. It is a diverse and rewarding job with new avenues always awaiting us. For more information, please visit our website at **http://tkurtz.grc.nasa.gov/spa**

QUALITY MANAGEMENT OFFICE

Lessons Learned

There is considerable talk right now about "LESSONS LEARNED". Lessons learned come to us from a variety of sources. In our own lives, we all have "lessons learned". In an engineering sense lessons learned is nothing more than a narrative collection of what we did in the past and how can it help us do better in the future. Lessons learned are not in and of themselves negative; in a general sense they are very positive. For example if you had to drive to downtown Cleveland during rush hour you might ask your colleagues for their experience (lessons learned) and they might advise you as how best to reach your needed location given the circumstances. If you had all those experiences of driving to downtown it might be a simple matter to put them in a 'database' so that at the click of a mouse you could see everyone's story of driving downtown at rush hour.

All Glenn engineers and contractors presently have two database tools to assist in passing on previous experiences to program/project managers. They are the NASA Lessons Learned Information System (LLIS) and the International Safety Lessons Learned Information System (ISLLIS). Both data bases have documented events from past experience to assist in the planning and implementation of current and future projects in order to avoid the repetition of past failures and mishaps. The databases are easily reached from Glenn's Homepage Transporter search. Enter LLIS or Lessons Learned in the Transporter window. Also, access can be gained from OSAT's Homepage and the Safety and Risk Management's home page at Headquarters. They are available to all with a government e-mail address. Those outside of the government that wish to make use of the information can apply for access from any of the Center's Steering Committee Members, a.k.a. Center Data Manager, located on the Home menu. At Glenn, it is Jim Cery (3-3002) in the Quality Management Office.

The NASA Lessons Learned Information System presently has 720 lessons. Clicking on the Search icon brings up a menu with information on how to search along with the search engines; simple and advanced. To submit a lesson, simply click on the Submit icon and it will lead you to the form. After the initiator completes the form and initiates the submission, it will automatically notify Glenn's Center Data Manager to review and then transmit to HQ. It is recommended that if there are multiple lessons, look at the possibility of combining them through some common thread. If there are any questions on searching for a lesson(s) or submitting, please contact Jim Cery.

The International Safety Lessons Learned Information Systems has a list of 131 lessons. As with the NASA LLIS, simply click on over Search on the menu and you will have two search engines, simple and advanced. To enter a lesson, use the NASA LLIS website. At the bottom of the entry form is a block to check if the lesson is for the safety data bank.

To get a listing of all lessons in either site, without entering anything in the window, simply click on Execute.

Other U S Agencies lessons learned databases are available. Simply go to Utilities in the NASA LLIS website. Click on Related Links. You have access to the DOE, Army, Navy Combined LLIS, Naval Facilities Engineering Command and the Air Force.

GET OUT!!!!!!!!

EMERGENCY EVACUATION PLANS

It is vitally important that each employee be aware of his or her respective work site surroundings and of their facility emergency evacuation procedures.

The Glenn Safety Office is in the process of providing webbased evacuation plans and the evacuation routes. Please see the Glenn Safety Office Homepage at {http://osat.grc.nasa.gov/safety/}. Click on the EMERGENCY EVACUATION button to review the routes and building specific plans. The development of these plans and routes is an ongoing process. We will keep the GRC population apprised on the status of the process.

As a general overview, please keep the following in mind:

When the evacuation signal (fire alarm) is heard, a fire is seen, or another emergency condition becomes known, employees and visitors need to immediately vacate the premises in a safe, calm and timely manner. They will take the shortest safe route to an exit, warning others along the way. If a **MEDICAL EMERGENCY** occurs, no building evacuation is necessary, but **911** should be **DIALED IMMEDIATELY**. This report of an emergency condition will be made directly to the **NASA EMERGENCY RESPONSE.**

Individual Employees

- **INDIVIDUAL EMPLOYEES NEED TO KNOW EMERGENCY EVACUATION PROCEDURES APPLICABLE TO THEIR OWN WORK LOCATION TO ASSURE THEIR INDIVIDUAL SAFETY AND THE SAFETY OF ANY GUESTS/VISITORS. ALL EMPLOYEES NEED TO KNOW THE LOCATION OF THE EVACUATION ALARM PULL BOXES IN THE VICINITY OF THEIR WORK AREA.**

- When the alarm sounds, all employees need to stop work, and if possible, turn off their computers or any other electrical device.

- **Personnel then need to GET OUT OF THE BUILDING IMMEDIATELY!** Employees **MUST NOT** lock office doors when vacating the facility.

- **ALL EMPLOYEES MUST** leave the facility. **DO NOT RUN; DO NOT LINGER** in the entranceways or driveways. **DO NOT** interfere with emergency operations.

- **ALL EMPLOYEES NEED TO STAY OUTSIDE OF THE FACILITY UNTIL NOTIFIED IT IS CLEAR TO REENTER BY NASA SECURITY OR NASA EMERGENCY RESPONSE.**

Again, we are in the process of updating our evacuation plans and routes. For additional information or if you have any questions, please contact Tom Eakin, Fire Protection/Life Safety Engineer (3-3948), or Manuel Dominguez, Chief, Glenn Safety Office (3-3019).

OUTREACH PROGRAMS

Community outreach is an important part of environmental management, and the Earth Day Committee has been the engine for this effort at Glenn Research Center. According to Mike Blotzer, Chief of the Environmental Management Office and sponsor of the Earth Day Committee, "this grassroots effort to highlight NASA Glenn technical accomplishments and Environmental Stewardship has been an outstanding program with participation from many different Glenn organizations. The Aero-Environmental Bus has reached thousands of people within the last 2 years and has hosted many VIP's, including the NASA Administrator, Dan Goldin, and Governor Taft."

The Earth Day Committee's charter is to educate and enhance the awareness of Glenn employees and the general public regarding NASA environmental activities, issues, and concerns. Dan White was selected to establish the NASA Glenn Earth Day Committee in 1993, serving as committee chair through all the past Earth Days. Rich Kalynchuk has been the co-chair for the past 3 years, succeeding previous co-chair, Toni Mayor. Michelle Kenzig serves as committee treasurer, and Linda Cognata is currently the archivist and event coordinator. Sandra Jacobson is the web master for the Organization's website and Mike Blotzer is the manager sponsor.

Former Governor and Senator of Wisconsin, Gaylord Nelson, founded the original Earth Day in 1970. The first Earth Day rallied over 20 million Americans from around the country. Today more than 200 million people in over 141 countries participate in Earth Day activities. This is the thirtieth anniversary of Earth Day.

This year the committee is planning many activities for Glenn and the outside public. Displays will be in the main cafeteria starting April 17 through April 19, 2000. The displays will include Affirmative Procurement, Recycling, USEPA, Alternative Energy Sources, and Alternative Transportation.

Three speakers are planned for Glenn employees on April 17, 2000, starting at 10:00am in the Ad Building Auditorium. Mark Hoberecht of the Electrochemistry Branch of the Power & On-Board Propulsion Technology Division will address the state-of-the-art of fuel cells.

Sheila Gayle Bailey, a senior research electrical engineer/physicist in the Photovoltaic and Space Environmental Branch will discuss solar cells. Dr. Fletcher Miller, National Center for Microgravity, will discuss viability of wind power in Ohio.

The Earth Day Committee will have displays at the Cleveland Metropolitan Zoo on EARTHFest, Saturday, April 22, 2000, highlighting NASA accomplishments. The committee will be taking the Aero-Environmental Bus to the Lakewood Earth Day 2000 on Saturday, May 6, 2000.

The Earth Day Committee also sponsors the Adopt-an-Interchange Program lead by Chip Redding. This group goes out to the I-480 interchange as needed during cooperative weather and picks up unwanted litter keeping our interchange green.

The Environmental Management Office Outreach Program is more than the Earth Day Committee. The Environmental Management Office also manages the Aero-Environmental Bus. The Environmental Outreach Team was instrumental in bringing NASA Glenn to the Cuyahoga County Fair for the first time 6 years ago. Since then the Center has been represented at the fair. For the past 3 years, we have supported the fair through the Aeronautics Educational Outreach Team. This bus was created to educate the general public about NASA Glenn's aeronautics program and the efforts to protect the environment with cleaner burning and quieter engines. Over 30,000 people have entered the bus and have seen the NASA Glenn video.

Additional information on the Earth Day Committee and the Aero-Environmental Bus is available at the EMO Website (www-osat.lerc.nasa.gov/oep/oep_oep.htm).

Security Clearance Investigations

Frequently Asked Questions

What is a Security Clearance Investigation?

A security clearance investigation is conducted to ensure that an individual is trustworthy and reliable such that he or she can have access to national security information.

Why is a Security Clearance Necessary?

If you require access to classified information, a personnel security clearance is required to aid in countering the threats that may stem from the following: Foreign intelligence services;

- Those who wish to overthrow or undermine the Government by unconstitutional or violent means; terrorist groups; and Individuals who
- May be susceptible to pressure or improper influence;
- Have shown dishonesty or lack of integrity, which casts doubt upon their reliability;
- Have demonstrated behavior or are subjects to circumstances, which may otherwise indicate unreliability.

Who is Affected?

Security clearances may be requested on individuals in the following categories, whose position involves access to sensitive government assets: Member of the military; Civilian employees working for NASA, the Department of Defense or other government agencies; Employees of government contractors.

How does the Security Clearance Process Work?

All candidates for a security clearance are asked to complete a security questionnaire Standard Form 86 (SF 86), which explains the purpose of the security clearance, sets out the government's security policy in full, and asks you to provide the personal details required to conduct the necessary checks. Each individual completing SF 86 should retain a copy for their records. The Security Management Office will no longer provide you with a copy. If you have any questions contact Sherrill White at 3-3033 or Gerri Wiese at 3-3025 of the Security Management Office.

Who conducts my Security Clearance Investigation and what does it comprise?

The Personnel Security Investigation (PSI) is conducted by the Office of Personnel Management (OPM) and is comprised of the following: A search of investigative files and other records held by federal agencies, including the FBI, and if appropriate, overseas countries; financial check (credit check); Field interviews of references (in writing, by telephone, or in person), to include co-workers, employers, personal friends, educators, neighbors, and other individuals, as appropriate; personal interview with you, conducted by an OPM Investigator.

Why me?

You should only be subject to a security clearance investigation if you will have access to classified national security information or will be involved with other sensitive duties. If you consider, either now or in the future, that your job does not involve this level of access, you should discuss this with your supervisor and contact a Security Specialist in the Security Management Office.

What About Unfair Discrimination?

All candidates for security clearances are treated impartially and consistently, regardless of their gender, marital status, age, ethnic origin, religious affiliation, or sexual orientation.

Who decides whether a Security Clearance will be granted?

An adjudicator (a person trained in the process of reviewing and evaluating security clearance information) reviews the results of your investigation and compares it to established qualifying criteria for access to classified national security information.

What Safeguards are there?

All OPM and NASA employees involved in the security clearance process, whether Investigators or Adjudicators, must meet the highest standards of integrity and personal conduct. All information received during the course of the investigation is scrupulously protected under the laws and statutes of the United States, including the Privacy Act of 1974. Additionally, OPM exercises the greatest care to ensure that all information collected during the investigative